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THE UNIVERSITY OF ALBERTA

TEACHERS AND HEARING IMPAIRMENT: KNOWLEDGE AND ATTITUDES

by

JOYCE THOMAS

(C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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OF .....Master of Education.....

IN

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Date: Sept 23/1991

DEDICATION

This thesis is dedicated to my mother
in recognition of her constant struggle to cope
as a hard-of-hearing woman in a hearing world.
She does this with
grace, humour and dignity.

Abstract

Mainstreaming children with hearing difficulties is reality for Alberta teachers and children. Teachers will encounter children with hearing loss in most regular classrooms. The main purpose of this study was to investigate the relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with hearing loss. An additional purpose was to determine whether there were significant changes in teacher knowledge and attitudes, as a result of attending an in-service presentation and whether increasing teacher knowledge would make a change in their expressed attitudes. A one-group pretest-posttest research design was used in the study. Structured questionnaires which included demographic, knowledge, and attitude sections were given to 36 teachers, before they attended a forty-five minute in-service training session. The same attitude and knowledge tests were post-administered to the group, 3 weeks after the in-service training session. Data analysis included descriptive and correlational statistics. Following the in-service presentation, a significant correlation was found between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. Results were interpreted to confirm that it is possible to increase teacher knowledge of hearing impairment, by means of a brief in-service training program. The findings increase understanding of the relationship between teacher knowledge of hearing impairment and teacher attitudes to individuals with hearing loss. Direction is given for teacher in-service training programs which will effectively increase teacher knowledge of hearing impairment and promote positive and helpful teacher attitudes toward mainstreamed children with hearing difficulties.

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Chapter I

Introduction

The knowledge that teachers have regarding hearing impairment influences their attitudes toward students with hearing difficulties (Fisher, 1971; Fisher & Brooks, 1981). The main purpose of this study was to investigate the relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. A second purpose was to determine whether there were significant changes in teacher knowledge and attitudes, as a result of attending an in-service presentation. An additional purpose was to determine if increasing teacher knowledge would make a change in their expressed attitudes.

Hearing impairment is a major educational problem. It may explain more academic retardation and developmental delay than is immediately apparent (Rodda & Grove, 1987). There are indications that students with varying degrees of hearing loss represent the largest single population of school children requiring special services (Hull & Dilka, 1984). The percentage of children with educationally significant hearing loss has been estimated to be approximately 30 per 1,000 school children (Ross, 1982). A major problem in the education of many children with hearing difficulty is that they do not hear normally and yet they are not very severely or profoundly deaf. There is a vast range of hearing abilities within this population (Moores, 1982). The majority of these children are being mainstreamed into regular classrooms with and without support services designed to meet their special educational needs (Flexner, Wray & Ireland, 1989; Moores, 1982). Mainstreaming of children with any kind of hearing impairment raises particular issues regarding their educational experience with respect to academic achievement and social adjustment (Rodda & Grove, 1987; Stewart, 1984; Reich et al., 1977; Ross et al., 1982).

This brief introduction to the issues of teacher knowledge of hearing impairment and atttitudes to mainstreamed children with hearing difficuties is

expanded on in the literature review. Relevant topics include a definition of the confusing terminology of hearing impairment, as well as a discussion of mainstreaming or integration of hearing handicapped children, in classrooms with normally hearing children.

A major focus of the present research is the effects of teacher knowledge and attitudes on the social acceptance of children with hearing loss, in the integrated classroom. Increased understanding of the relationship between teacher knowledge and teacher attitudes may indicate an effective means of assisting teachers to develop a heightened awareness and understanding of the academic and social effects of hearing difficulty. This course of action would be expected to lead to increased sensitivity and empathy on the part of teachers toward the mainstreamed children with hearing difficulties in their classrooms. These attitudes on the part of teachers, might then be communicated to all of their students, hard-of-hearing and normally hearing. Teacher in-service is a major concern. Regular classroom teachers informed about hearing deficits and their effects on children will be better prepared to provide optimum learning environments for hard-of-hearing students in mainstream settings (Cody, 1985).

In order to conduct the investigation, questionnaires were given to regular classroom teachers, before and after an in-service presentation on hearing impairment, given by the researcher. The present research provided data regarding the relationship between teacher knowledge of hearing impairment and attitudes toward individuals with a hearing loss. In addition, results of this research support the claim that increasing teacher knowledge of hearing loss and the educational and social implications of a hearing deficit will influence their attitudes toward mainstreamed hard-of-hearing children. Increased understanding of the difficulties hard-of-hearing children encounter in the regular classroom should lead to increased sensitivity and empathy toward all students. This is a strong rationale for teacher in-service.

Results of the research are reported in Chapter IV. The discussion and implications sections (Chapter V) give an overview of the implications of this study from research and educational perspectives.

Chapter II

Review of the Literature

The motivation for the present research was to increase understanding of the relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with hearing loss. An additional purpose was to determine whether there were significant changes in teacher knowledge and attitudes as a result of attending an in-service presentation and whether increasing teacher knowledge would make a change in their expressed attitudes.

As background to the study, a review of the research literature pertaining to teacher knowledge of hearing impairment, as well as research on negative attitudes toward children based on their disability, is presented in this chapter. In addition, the research literature on social acceptance and mainstreaming of children with hearing loss is selectively reviewed. Finally, a review of literature on the perceived need for teacher in-service training and the information about hearing impairment that should be included, is presented. Since the terminology of hearing impairment is complex and often misused (Rodda & Grove, 1987), the next section of the chapter is focused on defining relevant terms used in the thesis.

Definition of Terms

The following terms are used widely in the literature and in practice, although there is controversy over their precise definitions and use. For this reason, key terms are defined here and controversy about their use is noted.

Rodda and Grove (1987) define the term hearing impairment as "loss of hearing that is severe enough to produce disorders of communication requiring remedial or educational treatment" (p.1). It is used frequently as an umbrella term for hearing difficulty. Wherever possible in this investigation, the more specific terms, such as hard-of-hearing or deaf will be used. These terms are preferred, at present,

by deaf and hard-of-hearing adult consumer groups. The extensive variability in hearing ability within these groups should be noted.

Deaf - a term used to describe a person whose hearing is disabled to an extent (usually 70 dB ISO or greater) that precludes the understanding of speech, with or without the use of a hearing aid, through the ear alone (Moores, 1982).

Hard-of-Hearing - a term used to describe a person whose hearing is disabled to an extent (usually 35 to 69 dB ISO) that makes difficult without precluding the understanding of speech through the ear alone, with or without a hearing aid (Moores, 1982).

A further important qualification for describing hearing loss is the age of onset, whether prelingual, adventitious or deafened (Rodda & Grove, 1987).

Handicapped students (hard-of -hearing) - this term refers to individuals for whom some adaptation may be required, either to the regular program or to the classroom setting, in order to meet their academic and social needs (Reich et al., 1977).

Mainstreaming - this term refers to the academic and social integration of handicapped students in a regular classroom (Hull & Dilka, 1984; Reich et al., 1977; Stewart, 1984).

The following section is focused on a discussion of teacher knowledge of hearing impairment.

Knowledge

The primary responsibility for the education of children with educationally significant hearing losses often falls to educators who have had no special training regarding the complexity of hearing impairment and the effects of hearing loss on educational performance (Davis, Shepard, Stemachowicz, & Gorga, 1981; Martin, Bernstein, Daly, & Cody, 1988; Reich et al., 1977). The large numbers of children with hearing loss now placed in regular school settings has increased the degree of

contact between these mainstreamed students and regular classroom teachers. This has increased the need for teachers to become informed about hearing deficits and their effects on children; so they may be better prepared to provide optimum learning environments for hard-of-hearing students in mainstream settings (Cody, 1985). Severely to profoundly deaf students are also being mainstreamed in increasing numbers particularly in rural areas, as residential schools for deaf children close in several provinces of Canada.

A recent study surveyed knowledge of professionals and exposure to hearing loss (Lass et al.,1986). The respondents were classroom teachers, special educators, physicians, and rehabilitation counselors. These survey results suggested a strong need for those involved in education and mainsteaming hearing impaired children in the schools, as well as in assessment, counseling and referral of hearing impaired people, to gain more information on and exposure to hearing loss. The Lass et al., (1986) study has many implications, giving direction for pre-service and continuing education programs, for all professionals working with hearing impaired children.

Martin, Bernstein, Daly, and Cody (1988) conducted a survey regarding teacher knowledge of hearing disorders and attitudes about mainstreaming hard-of-hearing children; the results indicated that the knowledge of teachers of hearing disorders was quite limited. The teachers were reluctant to teach such children, unless substantial support personnel and in-service training were available. Despite a lack of knowledge and professional training in this area, a majority of the respondents showed an interest in helping hard-of-hearing students. These teachers believed that knowledge of hearing disorders was important and should be required by all school personnel. Experienced teachers advised other teachers to gain as much knowledge as possible about hearing impairments and characteristics of hard-of-hearing children.

Reich et al., (1977) found some indication that a teacher's knowledge of hearing impairment is important to the integrated child's success and concluded that every effort should be made to prepare teachers, as well as the rest of the class, for the entry of a child with a hearing loss. This may be especially important when the hearing loss is marginal or mild and thus relatively invisible.

The next section is focused on attitudes children with hearing loss may encounter in their school environment.

Attitudes

Mainstreamed children with hearing loss encounter negative stereotypical attitudes regarding their intelligence and personal desirability, as a result of their disability and use of hearing aids (Flexner & Wood, 1984).

Blood, Blood, & Danhauer (1977) identified a hearing-aid "effect", finding that the visual presence of a child's hearing aid evoked negative attitudes. A following study used listeners' reactions to obtain information about the perceived intelligence, achievement, personality, and appearance, of normal, hard-of-hearing and deaf children and found a systematic increase toward "less-desirable" ratings on all attributes as amount of hearing loss increased. These authors concluded that children were rated negatively on these categories due to an interaction of intelligibility of speech and hearing aids. This research suggested that a hearing impaired child's speech and hearing aid trigger negative social reactions, placing the child at a disadvantage, when compared to a child with normal hearing (Blood, Blood, & Danhauer, 1978). Another study found that the presence and size of hearing aids affected ratings of achievement for preschool children. Professionals and lay observers rated the children lower on achievement, when an aid was present, although only the lay observers showed a bias against the size of the aid. The authors of this study warn that lay public, teachers and clinicians should be aware of the fact that they may be discriminating against hard-of-hearing and deaf children in areas of intelligence and achievement (Danhauer,

Blood, Blood, & Gomez, 1980). Children also gave significant negative ratings on appearance to peers wearing hearing aids (Dengerink, & Porter, 1984).

Teachers who were asked to list characteristic traits of elementary children wearing hearing aids were in agreement in exhibiting stereotyped images of such children (Fisher & Brooks, 1981). Undesirable traits outnumbered desirable ones by a ratio of 3.5-1 The authors of this study note that a teacher who understood how to get and retain the attention of a hearing impaired child might not so readily see the child as inattentive and that teachers' lack of understanding of the characteristics of hearing impairment, might lead to certain responses, which are projections of teachers' feelings rather than attributes of the children. Fisher and Brooks (1981) conclude that the data do support the claim that elementary classroom teachers need greater understanding of the child with a hearing aid. The development of such understanding must begin in pre-service teacher education and continue with in-service education, in order to increase the probability of a successful education experience for students who wear hearing aids.

These studies support the hypotheses that professionals, as well as lay people, have negative perceptions and or attitudes toward children wearing hearing aids. Mainstreamed children, hearing and hearing handicapped are going to encounter these perceptions and attitudes from the adults in their school environment. The following section is focused on a discussion of social acceptance of students with hearing loss in the integrated classroom.

Social Acceptance

The integrated classroom may not provide an environment which offers equal educational opportunity for all children with hearing loss to develop both academic and social skills (Brill, 1978; Ross et al., 1982; Stewart, 1984). Integration may be beneficial to academic development, but personal and social difficulties may result (Antia, 1985; Reich et al., 1977; Semmel et al., 1979). Studies of social acceptance of

mainstreamed children with hearing loss indicate that overall, these students may not be as well accepted as their hearing peers (Reich et al., 1977; van den Horst, 1971). There are conflicting findings indicating a wide range of acceptance of individual, hearing handicapped children (Kennedy & Bruininks, 1974; Reich et al., 1977; Semmel et al., 1979). Social interaction among children with hearing loss and normally hearing peers requires further research attention from educators, as it becomes apparent that successful social integration involves much more than merely physical placement of children in mainstreamed classrooms (Antia, 1985).

Bowyer and Gillies (1972) assessed the emotional adjustment of hearing impaired children by projective techniques and their social behaviour by teachers' ratings. No significant differences were found between the severely and partially deaf. The authors concluded, that partially deaf children attending regular schools were able to hold their own with hearing children, when regular contact with specialist staff was maintained. They considered that this kind of guidance may be a necessary provision for partially deaf chlldren who are to cope with mainstreaming.

Reich et al. (1977) found that children with mild to moderate hearing losses were less socially accepted than those with greater losses. The authors give as a possible explanation, the relative invisibility, of this handicap. As it is less obvious, teachers and peers may make less accomodation to the problems of the child. That is, they do not make allowances for his or her communication difficulties. It appears that the educational environment is in some way different for children with mild as opposed to more severe handicaps (Reich et al. 1977). These authors suggest that closer observation of what happens to hard-of-hearing children in a regular classroom may show that the teacher is more accommodating to the more severely impaired child. An additional problem for hard-of-hearing children with marginal or mild losses is that the poorly informed teacher will likely infer that they are slow, inattentive, uninterested, poorly motivated or a behaviour problem, rather than that there is a

hearing loss (Fisher, 1971). Teachers aware of and responsive to the educational implications of even a mild hearing loss may be less apt to automatically attribute performance below par to low intelligence or poor motivation.

Levine (1981) discussed a cycle in which impaired acoustic environments lead to impaired psychological environments, which subsequently influence human behaviour. For individuals with hearing loss, there is automatically a feeling of isolation, of detachment from the world. This results because they have difficulty keeping in touch with life around them. The environment escapes from their perceptive grasp. This creates tensions imposed on interpersonal communication. The inner auditory turmoil created by this difficulty in communication is not visible, except as possible changes in behaviour, which annoy and society and the environment retreat even farther. Thus, students with hearing loss have a physical, sensory sound barrier between themselves and their environment. Their hearing deficit presents an irritating block to quick, easy communication and creates a communication barrier, isolating them. This barrier needs to be negotiated. For both participants, this requires understanding and patience (Levine, 1981).

College students encountered barriers to participation in the mainstreamed classroom created by the problems associated with their hearing loss and its necessary accommodations, as well as constraints from the classroom environment, which exacerbated the problems associated with their hearing loss (Saur, Layne, Hurley, & Opton, 1986).

The extent of the isolation students with a hearing loss experience has a complex etiology. It is related on an individual basis to the psychology of hearing impairment and may vary with the degree of hearing loss (Levine, 1981; Rodda & Grove, 1987) . It is also a function of negative perceptions and attitudes hearing impaired children encounter from others in their environments. The communciation barrier often creates an additional attitudinal barrier (Levine, 1981).

The following section is focused on a discussion of some the concerns present when children with hearing loss are mainstreamed into a regular school environment.

Mainstreaming

Mainstreaming is an attempt to place handicapped children in an integrated educational environment, which offers an optimum of academic achievement and social adjustment, in this way providing equal educational opportunity for all children. (Semmel, Gottlieb & Robinson,1979; Stewart, 1984; Ross, Brackett & Maxon, 1982). By integrating handicapped students in the regular classroom, mainstreaming programs attempt to provide increased contact for these students with their nonhandicapped peers (Bauer, 1985; Ross et al., 1982). However, there is concern that mainstreaming children with hearing loss into an integrated classroom setting may have negative, as well as beneficial effects, on their academic and social adjustment. Physical presence may not result in either social integration or social acceptance for many handicapped students (Reich, Hambleton, & Houldin, 1977; Ross et al., 1982; Weisel, 1988).

Even though they are physically in the mainstream, handicapped children often continue to be socially isolated by an attitudinal barrier, their most crippling handicap one of the mind, not the body (Bauer, 1985). Helen Keller asserted that the heaviest burdens of disability arise from personal interaction and not from the impairment itself (Baskin & Harris, 1977).

A major barrier to effective mainstreaming is a classroom where attitudes of rejection leave handicapped children isolated, even while surrounded by their peers (Baskin & Harris, 1984). Acceptance and social integration of hearing handicapped students are major factors in determining the overall success of mainstreaming and consequent benefits to all children with hearing difficulties (Rodda & Grove, 1987; Stewart, 1984; Reich et al., 1977). Of the many variables which impact upon, and influence the effectiveness of alternative classroom placements, attitudes held by

teachers and other school personnel toward the handicapped child and mainstreaming have a major influence on the effectiveness of mainstreaming programs (Semmel et al., 1979).

The extent of the handicap of a child may be dependent upon the environment in which he or she is placed (Stewart, 1984). Hearing loss restricts an individual in assimilating information and interacting with the surrounding environment. This restriction is the handicap, a disadvantage which makes achievement difficult. Appropriate educational programs will alleviate or remove the disadvantage for hearing handicapped students (Stewart, 1984).

Research studies indicate that achievement of mainstreamed children with hearing loss is dependent on many variables, such as communication ability, I.Q., reading level, parental support and extent of hearing loss (Reich et al., 1977; Rodda & Grove, 1987; Ross et al.,1982; Stewart, 1984). An additional important factor, is the availability of appropriate educational services (Reich et al., 1977; Semmel et al., 1979). Successful mainstreaming would include social acceptance of children with hearing loss and meaningful interaction between normally hearing and hearing handicapped children (Stewart, 1984).

Ideally, all school personnel, teachers and peers need to be prepared to accept children with a hearing loss into the school program, helping them to take their places in the mainstream of school and society. To make this possible, widespread education is needed. The following section is a discussion of education for regular classroom teachers, on the subject of hearing impairment.

Teacher In-service

Success or failure of hearing handicapped children in a regular education program may depend on information provided to the educational personnel (Fitch, 1982). The success of integrated programs depends on many factors but it is of prime importance that teachers receive orientation about the characteristics and special

needs of children they will meet in their classes (Cody, 1985; Froehlinger, 1981; Northcott , 1973; Reich et al., 1977; Ross, 1982; Yater, 1977). Teachers are the single most important resource in mainstreaming children with hearing loss (Bennett, 1985). The regular classroom teacher is a major influence in determing the extent to which the child's potential is achieved within a regular school setting (Cody, 1985; Froehlinger, 1981; Northcott , 1973; Yater, 1977). It is the attitude of this professional toward the handicapped child that is of major importance. (Carmean & Wood, 1982; Rittenhouse, 1987). Teachers communicate attitudes and model behaviours toward mainstreamed students with hearing loss (Carmean & Wood, 1982; Reich et al., 1977). Children's academic achievement and social adjustment in the classroom are likely strongly influenced by their teachers' attitudes (Birch, 1975; Northcott, 1973; Yater, 1977).

In-service training on mainstreaming for regular classroom teachers needs to focus on teacher attitudes. Knowledge of student characteristics, classroom management and individualizing instruction follow (MacMillan & Wheatley, 1981). Four important basic reasons for conducting in-service training sessions for educators who are or will be working with children with hearing loss are: to provide information about the educational implications of a hearing loss, to attempt to establish a positive receptive attitude toward the student with a hearing loss, to teach skills and strategies for working with students with a hearing loss and to provide an opportunity for interaction between regular educators and specialists (Yater, 1977).

The regular classroom teacher should be given explicit instruction in the problems and management of hearing impairment. Important topics include limitations of hearing aids and the comprehensive nature of the effects of hearing impairment on language development (Reich et al., 1977). Teachers require an introduction to the issues of hearing impairment; training in how hearing-impaired children communicate and receive language, ie, information about hearing aids, lipreading, sign language and

interpreting (Strong, Charlson, & Gold, 1987). Teachers require a basic knowledge of hearing loss and the educational implications and ramifications of this deficit on all interpersonal communication (Cody, 1985; Culhane & Mothersell, 1979).

The content of an in-service program should deal with three main issues: the nature of hearing and consequences of hearing loss; the use of amplification technology; and educational management strategies (Flexner, Wray & Ireland, 1989). An important aspect of presenting educational management stategies is to include direction for obtaining further information and additional learning resources. In-service should discuss amplification systems, hearing aid trouble shooting, classroom acoustics, special seating and lighting (Cody, 1985). Teachers require an awareness of the acoustic envronment in which hard-of-hearing children must learn, and the effects of reverberation and background noise (Ross, 1982). Information on hearing aids and other amplifying devices is critical for an understanding of how they may or may not provide assistance for children (Hull & Dilka. 1984). Classroom teachers should understand the importance of amplification, yet be aware of the limitations of amplifications systems. A hearing aid does not cure hearing loss, it simply amplifies sound (Ross, 1982). However, a properly fitted and adjusted hearing aid in good working condition is a crucial element in the education of a student with a hearing loss (Birch, 1975; Culhane & Mothersell,1979; Ross, 1982).

Teachers should be aware that all hearing losses are not the same. Different kinds of losses produce different effects on students. Although there are general guidelines for dealing with hearing difficulty and resultant communication problems; teachers who have a child with hearing loss in their class should find out the specific nature of the student's problem and learn the best way to deal with the individual (Culhane & Curwin, 1978).

Teachers succcessful in the mainstreaming of special children possess characteristics which may be divided into affective and cognitive areas. These

categories present useful guidelines for pre-service and in-service training programs, as well as for continuing education (Carmean & Wood, 1982). Teacher in-service should provide the education required for both cognitive and affective change. Education should result in cognitive change based on accurate information about handicaps and affective change, as a result of gaining an empathic awareness of characteristics and problems of people who are handicapped (Monson & Shurtleff, 1979). Both kinds of knowledge are required for teachers, enabling them to fulfill positive roles as they plan and create the classroom environment.

There are many sources which give teachers important classroom suggestions for working with children with hearing loss (Clark &Pieper, 1978; Godsave, 1978; Hull & Dilka, 1984; Mollick & Etra; Northcott, 1973; Ross et al., 1982; Wapnick & Kimmel, 1982). These references were all used by the researcher in developing the in-service program for teachers.

Summary

The focus of the present study is on the relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. It is evident from the literature review that many children with hearing difficulty do encounter negative perceptions and attitudes in their school environment. These negative perceptions and attitudes are likely based on lack of knowledge of hearing loss, the resultant communication problems and consequent educational and social implications. There is agreement that mainstreaming may have beneficial effects on language and academic development but that personal and social difficulties may result. For children with a hearing difficulty, isolation from their peers and the environment is a consequence of the the communication barrier created by their hearing loss, as well as environmental constraints. Negative stereotypical attitudes frequently create an additional attitudinal barrier. These barriers need to be negotiated and overcome, in order for all children to have a successful educational

experience in the integrated classroom. Integration is more than just physical placement of hard-of-hearing children in a classroom with normally hearing children. Successful integration requires meaningful interaction among the children. Consequently, appropriate educational placement is a necessity.

It has been shown that teachers generally have very little education and training regarding hearing impairment and working with children with hearing difficulty. However, they are anxious to learn, in order to work with all children, as successfully as possible. Teachers' attitudes are considered to be of prime importance because teachers communicate attitudes and model behaviours to all children. Therefore, development of positive attitudes should be the focus of any educational in-service presented to teachers.

There is a concensus from the literature (i.e. Cody, 1985; Reich et al., 1977; Ross, 1982) that the content of teacher education in this area should address four main areas. These areas are: hearing health and hearing disorders, hearing loss and amplification, the communication deficit and resultant educational and social implications and classroom management. This information and format were used when designing and offering the in-service.

It is the view of this researcher that there is a relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. It is further proposed that it is possible to increase teacher knowledge of hearing impairment by means of an in-service training program and that this increased knowledge will influence attitudes.

Arising from the literature cited are four main research questions or hypotheses.

I. It is possible to increase teacher knowledge of hearing impairment by means of a brief in-service training program.

II. It is possible to change teacher attitudes toward individuals with a hearing loss by means of a brief in-service training program.

III. Prior to an in-service training program, there will be a significant relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss.

IV. Following an in-service training program, there will be a significant relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss.

Chapter III

Methods and Procedures

Chapter III contains detailed descriptions of the methods and procedures followed. Included are: descriptions of the research design, the sample, the instruments used, the experimental treatment, data collection and data analysis.

Research Design

A one-group pretest-posttest design was used. This involved administering a pretest to measure the dependent variables, delivering the experimental treatment, and subsequently administering a posttest to measure the dependent variables again. In addition, the relationship between the two variables was examined before and as a result of the experimental treatment.

Sample

The sample for this study was a group of teachers from a rural jurisdiction. This school jurisdiction has approximately six hundred and fifty students, served by forty three teachers, based in four different schools. This was a sample based on numbers available and accessible, limiting the extent to which the findings of this study may be generalized.

Demographic data for the subjects is listed in Table 1. As can be seen, the majority of the subjects were female. The average age of the subjects fell between 40 and 50 years old. Most of the subjects had between 5 and 25 years teaching experience. Only 3 of the subjects had taken any courses which dealt specifically with hearing and/or hearing impairments. None of the subjects reported any training or experience in working with hard-of -hearing children. The majority of the subjects stated they had never taught children identified as hard-of-hearing.

Table 1

Demographic Data for the Subjects (N=36) of the Study

Gender	M 15	F 21
Age	20-30years	8
	30-40years	9
	40-50years	17
	50+years	2

Total number of years teaching experience

0-5years	8
5-15years	2
5-25years	13
25+years	3

Courses taken which dealt specifically with hearing and/or hearing impairments

None	33
1	3
2	0
3 or more	0

Training or experience in working with hard-of-hearing children

None	34
Workshops or In-service training	0
Personal contact with professionals trained to serve hard-of-hearing children	1
Other	1(brother is deaf)

Taught children identified as hard-of -hearing

Never	23
Occasionally	13
Frequently	0
Regularly	0

Research Instruments

Teacher Questionnaire

One main instrument or data collection form was used in this study. It was a composite form, incorporating a demographic questionnaire, a knowledge questionnaire, and an attitude questionnaire.

The teacher knowledge section of the questionnaire used was developed by Reich et al. (1977) to provide a crude estimate of teacher knowledge of hearing impairment and the classroom management of the hard-of-hearing child. The authors derived thirty-two questions from handbooks and materials developed to educate laypeople about hearing impairment. They cite their most important source as an article by Gildston (1973). The questions are grouped under five topics. They are: physiology of hearing loss, listening performance, hearing aid performance, effects on educational development and language performance and classroom management. The questions were in a true or false format. The score of each teacher for this section was the number of items answered correctly.

The attitudes section of the questionnaire was also used by Reich et al. (1977) in their study. The actual instrument used is a modification of the short form of the "Attitudes Toward Disabled Persons" questionnaire by Yuker, Block and Young (1970). The modification consists of substituting the words "hearing impaired" for "handicapped", which is the modification recommended by the authors when the test is used to assess attitudes toward specific handicapped groups. If used again, a better modification today would be to omit hearing impaired and substitute hard-of-hearing as a conventional adjective followed by the appropriate noun. This section of the questionnaire was used as a measure of the attitudes of regular teachers to hard-of-hearing individuals.

This scale is based on the assumption that negative attitudes toward handicapped people find expression in the feeling that such people are basically

different from normal individuals in personal characteristics and in the way they should be treated. The scale consists of statements describing a variety of such differences. Respondents are asked to indicate the extent to which they agree or disagree with each statement, using a five point scale. See Appendix A for a copy of this instrument and the scoring procedure.

Experimental Treatment

The experimental treatment involved a forty-five minute in-service training session. The in-service session was developed by the researcher, in consultation with other professionals, who have developed and used particular materials and procedures, relevant to the educational objectives of this project. The in-service program was not specifically geared to the questionnaire, although the same main topics of concern were used. The researcher chose a presentation which was considered to include relevant information on hearing loss, as well as furthering the goal of developing an awareness and understanding, of the academic and social problems encountered by children with hearing loss, in mainstream settings. The researcher suspected due to the research literature that awareness and understanding would lead to an interest in acquiring further knowledge, as well as increased sensitivity and empathy, toward students with hearing loss. An outline of the in-service program presented to school personnel as part of this study appears in Appendix B.

The in-service program was organized around thirty overhead transparencies representing three main areas which were addressed. The first section dealt with physiology of hearing, hearing disorders, hearing loss and amplification. The second section dealt with the communication deficit of hearing difficulty and the resultant educational and social implications. The third section dealt with classroom management. As each transparency was viewed, the relevant subject matter was

discussed by the researcher. A list of the transparencies used also appears in Appendix B.

The researcher attempted to meet the criteria noted by Yater (1977) for training sessions for educators; ie., to provide information about the educational implications of a hearing loss, to attempt to establish a positive receptive attitude toward the student with a hearing loss, to teach skills and strategies for working with students with a hearing loss and to provide an opportunity for interaction between regular educators and specialists.

The in-service program was presented by the researcher on four separate occasions, once at each school. This was necessary, in order to accomodate the teachers who participated as subjects for this investigation. The in-service was attended after school, on a volunteer basis, by all subjects.

Procedure

The research procedure for accessing the sample was initiated by contacting the superintendant of the proposed jurisdiction to explain the nature of the study, outline the research plan, and seek approval and cooperation. This was readily obtained. The researcher was given permission to contact individual principals and to request access to the teachers. The researcher contacted each principal, explained the research procedure and received permission to speak to the teachers. The researcher then met with each group of teachers to briefly outline the nature of the study and seek their cooperation. Teachers at each of the four schools in this jurisdiction were asked to commit themselves to completing the pretest and posttest, requiring approximately half an hour each and to attend an hour in-service after school.

Subjects were informed initially that all information received would be kept confidential. Following data collection, personal names would be deleted from all forms and would not remain part of any permanent record. The subjects recorded their names on the first sheet used to collect biographical and demographic information.

Coded identification numbers were placed on the response sheets of the questionnaires. These response sheets were computer scored.

The self-administered pretest questionnaires were distributed to the subjects at school, several days before the in-service was presented. The subjects then participated in a forty-five minute in-service at school after school hours. The posttest questionnaires were distributed to the subjects at school, three weeks following the in-service. They were given several days to complete them.

Data Analysis.

Data analysis for the study included descriptive and correlational statistics. For Hypotheses I and II data analyses was accomplished by a 1-way analysis of variance between pretest and posttest scores for knowledge, attitudes and total scores. For Hypothesis III and IV a correlation matrix was derived to determine relationships between pretest knowledge and attitudes scores and posttest knowledge and attitudes scores. In addition, a correlation matrix was calculated to determine relationships between knowledge and attitutes and total scores and the demographic variables. These relationships are reported as ancillary findings.

Criterion significance was set at the .05 level. Michigan Terminal System (MTS) computer program SPSS-X was used in data analysis. In addition to reporting findings significant at the .05 level, trends toward significance will be reported. For purposes of the present study, values between .05 and .10 will be regarded as trends in the data.

Chapter IV

Findings and Conclusions

Several research hypothesis guided this study. For each hypothesis, data was gathered and results tallied. Tests were performed to determine if the observed numerical differences were large enough to have occured beyond chance. Hence, in presenting the findings, each hypothesis is restated, then the relevant test results are offered in table form. Thereafter, for each hypothesis, conclusions are drawn, as regards the acceptance or rejection of each contention or hypothesis.

Hypothesis I

It is possible to increase teacher knowledge of hearing impairment by means of a brief in-service training program.

Findings. As may be seen from Table 2, the means for pre knowledge and post knowledge on the test package appear different. In order to test for difference, a one-way analysis of variance (SPSS-X) was employed. As can be seen the actual probability is .004 which exceeds the criteria significance acceptance level of beyond .05 set at the proposal stage of the study.

Conclusion. Therefore, Hypothesis I must be accepted. The sample of teachers for this study did have their knowledge of hearing impairment increased by an in-service training session.

Hypothesis II

It is possible to change teacher attitudes toward individuals with a hearing loss by means of a brief in-service training program.

Findings. As may be seen from Table 3 the means for pre attitudes and post attitudes on the test package appear only very slightly different. In order to test for a significant difference, a one-way analysis of variance (SPSS-X) was employed. As can be seen the actual probability is .550 which does not meet or exceed the criteria significance acceptance level of beyond .05 set at the proposal stage of the study.

TABLE 2

Pretest and Posttest means, standard deviations and probabilities of differences for the teachers (N=36) on the Knowledge Questionnaire

	Variable	
	PreKnowledge	PostKnowledge
N	36	36
Mean	21.9167	23.5833
Std. Dev.	2.922	3.037
Std. Error	0.487	0.506
Difference between means	-1.6667	
Std. Dev. (pooled)	3.269	
Std. Error (pooled)	0.545	
Correlation	0.399	
2-Tailed Probability(Corr)	0.016	
T-Value	-3.06	
Degrees of Freedom	35	
2-Tailed Probability(t-test)	0.004	

TABLE 3

Pretest and Posttest means, standard deviations and probabilities of differences for the teachers (N=36) on the Attitudes Questionnaire

	Variable	
	PreAttitudes	PostAttitudes
N	36	36
Mean	42.1111	42.9722
Std. Dev.	9.858	8.775
Std. Error	1.643	1.462
Difference between means	-0.8611	
Std. Dev. (pooled)	8.560	
Std. Error (pooled)	1.427	
Correlation	0.583	
2-Tailed Probability(Corr)	0.000	
T-Value	-0.60	
Degrees of Freedom	35	
2-Tailed Probability(t-test)	0.550	

Conclusion. Therefore, Hypothesis II must be rejected. The sample of teachers for this study did not change their attitudes toward individuals with a hearing loss as a result of attending the brief in-service training session.

Hypothesis III

Prior to an in-service program, there will be a significant relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss.

Findings. Correlations were calculated (see Table 4) to determine the relationship between teacher pretest knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. No significant correlation was found for this relationship.

Conclusion. Therefore, Hypothesis III must be rejected. Prior to the in-service program, the sample of teachers for this study did not demonstrate a significant relationship between knowledge of hearing impairment and attitudes toward individuals with a hearing loss.

Hypothesis IV

Following an in-service program, there will be a significant relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss.

Findings Correlations were calculated (see Table 4) to determine the relationship between teacher posttest knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. A significant negative correlation (-.33, P=0.023) was found between teacher posttest knowledge and teacher attitudes scores.

Conclusion. Therefore, Hypothesis IV is confirmed. Following the in-service program presented, the sample of teachers for this study did demonstrate a significant

Table 4
Correlation matrix between all variables in the study (N=36)

	Sex	Age	Exp	Train	Inservic	Hhexp	Preknow	Preatt	Pretot	Postknow	Postatt
Age	-.1006										
	p=.280										
Exp	-.2743	.8296									
	p=.053	p=.000									
Train	-.0510	.1039	-.1015								
	p=.384	p=.273	p=.278								
Inservic	.2506	-.1207	-.0182	-.0894							
	p=.070	p=.241	p=.458	p=.302							
Hhexp	.1662	.0851	.0655	.1918	.3944						
	p=.166	p=.311	p=.352	p=.131	p=.009						
Preknow	.1125	-.0752	-.0753	.0785	.1887	.3028					
	p=.257	p=.331	p=.331	p=.325	p=.135	p=.036					
Preatt	-.0367	.0276	.0465	.0172	-.1788	.0806	-.1018				
	p=.416	p=.437	p=.394	p=.460	p=.148	p=.320	p=.277				
PreTot	-.0033	.0052	.0239	.0400	-.1212	.1681	.1919	.9568			
	p=.492	p=.488	p=.445	p=.409	p=.241	p=.164	p=.131	p=.000			
PostKnow	-.0612	-.0584	-.0758	.2434	.0784	-.0306	.3985	-.4422	-.3197		
	p=.362	p=.368	p=.330	p=.076	p=.325	p=.430	p=.008	p=.003	p=.029		
Postatt	-.0092	-.2232	-.2501	-.1384	-.3032	-.0444	-.0313	.5833	.5663	-.3361	
	p=.479	p=.095	p=.071	p=.210	p=.036	p=.399	p=.428	p=.000	p=.000	p=.023	
PostTot	-.0323	-.2584	-.2934	-.0576	-.2931	-.0583	.1132	.4568	.4838	0.106	.9382
	p=.426	p=.064	p=.041	p=.369	p=.041	p=.368	p=.255	p=.003	p=.001	p=.475	p=.000

relationship between knowledge of hearing impairment and attitudes toward individuals with a hearing loss .

Ancillary Findings

Some additional correlations were computed to see if other pertinent relationships existed. Moreover, these other correlations were obtained to see if various counter hypotheses could be entertained. No such counter hypothesis seemed to be tenable. However, the correlations show some ancillary points of relationship (see Table 4.) as follows.

A significant positive correlation (.30, P=0.036) was found between pretest teacher knowledge of hearing impairment and their response to having taught children identified as hard-of hearing. Higher scoring teachers more often reported having taught hard-of hearing children.

A significant positive correlation (.39, P=0.009) was also found between those with previous in-service training or experience and their response to having taught children identified as hard-of hearing. Teachers with previous training more often reported having taught hard-of hearing children.

A significant negative correlation (-.30, P=0.036) was found between previous in-service training or experience and posttest attitudes scores. Teachers with previous training scored lower on the attitudes posttest.

A significant negative correlation (-.44, P=0.003) was found between pretest attitudes scores and posttest knowledge scores. Teachers scoring higher on the attitudes pretest scored lower on the knowledge posttest.

Trends toward significance (i.e. between .05 and .10) were found (see Table 4) between teacher age and posttest attitudes scores (-.22, P=0.095) and between number of years of teaching experience and posttest attitudes scores (-.25, P=0.071). There were negative correlations between age and years of teaching experience and attitudes scores. Older teachers with more years of teaching experience tended to

have lower scores on the attitudes posttest. There was a trend toward significance (.24, P=0.076) between number of courses teachers had previously taken dealing specifically with hearing and/or hearing impairments and teacher posttest knowledge scores. Teachers who had previously taken a course scored higher on the knowledge posttest than those who had not.

Summary of Findings

To review the Hypotheses:

I. It is possible to increase teacher knowledge of hearing impairment by means of a brief in-service training program.

II. It is possible to change teachers' attitudes toward individuals with a hearing loss by means of a brief in-service training program.

III. Prior to an in-service training program, there will be a significant relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss.

IV. Following an in-service training program, there will be a significant relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss.

Hypotheses I was confirmed. It was determined that the sample of teachers for this study did have their knowledge of hearing impairment increased by means of a brief in-service training program.

Hypotheses II was rejected. It was determined that the sample of teachers for this study did not change their attitudes toward individuals with a hearing loss as a result of attending a brief in-service training program.

Hypotheses III was rejected. It was determined that prior to the in-service program, the sample of teachers for this study did not demonstrate a significant relationship between knowledge of hearing impairment and attitudes toward individuals with a hearing loss.

Hypotheses IV was confirmed. It was determined that following the in-service program presented, the sample of teachers for this study did demonstrate a significant relationship between knowledge of hearing impairment and attitudes toward individuals with a hearing loss .

Correlations were calculated other than those directly related to the hypotheses. These correlations indicate additional interesting relationships between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. These hypotheses, findings and relationships are further discussed in Chapter V.

Chapter V

Discussion and Implications

The findings of the study provide data regarding the relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. The results of the research support the claim that teacher knowledge of hearing loss and the educational and social implications of a hearing deficit will influence teacher attitudes toward mainstreamed children with hearing difficulties. In addition, the study results provide a rationale and direction for teacher in-service programs in this area.

Discussion

Thirty-six teachers from four schools in a rural jurisdiction in Alberta completed the pretest and posttest and attended a one hour in-service session after school. This time expenditure on the part of teachers, at a particularly busy time of year may be taken to demonstre that they thought increased knowledge of hearing impairment important. This is similar to the findings of other researchers (Cody, 1986). Given this teacher motivation and effort, it was gratifiying that the study confirmed that it is possible to increase teacher knowledge of hearing impairment, by means of a brief in-service training program.

The hypothesis that teachers would, after the in-service program exhibit attitudinal change was rejected. That the hypothesis was rejected requires some comment. Overall scores of the teachers on the attitudes questionnaire did not show a significant change in either direction, positive or negative. However, it was also hypothesized that a significant correlation between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss would be found. The relationships between teacher knowledge and attitudes scores, pretest and posttest provided additional interesting data. Prior to the in-service session, no significant correlation was found between teacher knowledge of hearing impairment

and teacher attitudes toward individuals with a hearing loss. However, following the in-service program, test scores demonstrated a significant correlation between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. After attending an in-service session, teachers most knowledgeable about hearing impairment scored lowest on the attitudes measure. This is an indication that teachers most informed about hearing impairment and the educational and social implications of hearing loss viewed individuals with hearing loss more differently than did their less informed colleagues. As a result of the in-service session, these teachers were more aware of the communication difficulties and unique problems usually experienced by individuals with hearing loss. This was a very interesting and welcome finding, as a major goal of the in-service program was to promote teacher awareness and understanding of the academic and social effects of hearing difficulty.

Following the in-service session, experienced teachers tended to view individuals with hearing loss as more different than did teachers with less experience. This was an interesting finding indicating that experienced teachers may be more apt to see differences amongst individuals with hearing loss as a result of an in-service session because they are more aware of the educational and social implications of communication difficulties in the classroom

An additional significant finding was that teachers who scored higher on the knowledge measure more frequently reported having taught hard-of hearing children. These results could be taken to mean that the more teachers know about hearing impairment, the more likely they are to be aware of children with hearing loss in their classrooms. This awareness and knowledge should lead to increased understanding, sensitivity and empathy on the part of teachers, toward all children with hearing difficulties mainstreamed in regular classrooms.

Summary of Discussion

The results clearly indicate that it is possible to increase teacher knowledge of hearing impairment significantly, by providing a brief in-service program on the subject. The results of the study demonstrate a relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. Following the in-service presentation, posttest knowledge and attitude scores showed a significant correlation. The more teachers know about hearing impairment, the more they perceive individuals with hearing difficulty as different and requiring special treatment. A goal of the in-service program was to make teachers more aware of and sensitive to the educational and social implications of hearing loss. Increased teacher awareness and knowledge should lead to increased understanding of the communication problems resulting from hearing loss and promote sensitive and empathic teacher attitudes toward children with hearing difficulty in the classroom.

Implications for Practice

Important implications for practice may be drawn from this study as it is likely that all regular classroom teachers will encounter children with some degree of hearing loss. Although estimates of the numbers of children with hearing impairment vary considerably, one study reported that 5 percent of the school-age population, had hearing acuity levels outside the range of normal (Hallahan & Kauffman, 1986).

A major implication of the study is that regular classroom teachers are interested in the subject of hearing impairment and willing to expend time and effort to become more knowledgeable in the area. The study results demonstrate that it is possible to increase teacher knowledge of hearing impairment significantly by providing an in-service program on the subject.

There is a relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with a hearing loss. Understanding this relationship is important because the knowledge regular classroom teachers have

regarding hearing impairment likely influences teacher attitudes toward their students with hearing difficulties. Teachers communicate attitudes and model behaviours to children so teacher knowledge and attitudes regarding hearing impairment will likely have an important effect on the academic achievement and social adjustment of all children with hearing loss mainstreamed in the regular classroom.

Regular classroom teachers should be provided with in-service training programs on the problems and management of children with communication difficulties, due to hearing loss. Major goals of teacher, in-service programs on hearing impairment should be to provide information about hearing disorders and the educational implications of hearing loss, as well as to promote the development of positive attitudes toward students with hearing difficulty. Attitudes have been changed through information and example (Ross, 1982).

An in-service program should discuss incidence and prevalence of hearing loss among school age children. The greatest detriment to those children who possess any level of hearing loss from mild to profound is that hearing impairment is an invisible handicap (Hull & Dilka, 1984). Many teachers are not aware of the prevalence of hearing loss in the children in their classrooms. The majority (23/36) of the group of teachers used as the subjects of this study (see Table 1), responded that they had never taught children identified as hard-of hearing.

An effective in-service program on hearing impairment for regular classroom teachers might be organized around three essential areas identified from the literature review. These are: hearing, hearing loss and amplification technology; educational and social implications and communication problems related to hearing loss; and educational strategies and classroom management for students with hearing difficulties.

In-service sessions should provide explicit instruction in the problems and management of hearing impaired children in the classroom. Educational management

strategies are extensive and varied. A knowledgeable teacher may be encouraged to assess the specific nature of a student problem, developing an efficient way to deal with the individual student. Children with hearing difficulty may require far more sympathetic understanding and encouragement than students with normal hearing. Meeting these needs is an obligation of the regular classroom teacher (Bennett, 1985).

Implications for Further Research

Investigating the relationship between teacher knowledge of hearing impairment and teacher attitudes toward individuals with hearing loss is complex. There are many variables involved. A major problem is finding a satisfactory instrument to quantify the variables being studied. The present researcher used a questionnaire which was a composite form. The knowledge section of the questionnaire was used to provide a crude estimate of teacher knowledge of hearing impairment and the classroom management of the hard-of-hearing child and appeared adequate for the study. The attitudes section of the questionnaire was a scale, originally constructed to measure attitudes toward disabled individuals and used previously in a modified form to assess attitudes toward specific handicapped groups. This instrument was used as a measure of the attitudes of regular classroom teachers toward hard-of-hearing individuals and may not have been specific enough for the purpose. Therefore, a prime implication of the present study for future research is that an instrument be found or developed, that is very specific to assessing teacher attitudes toward students with hearing loss. A suitable measure of teacher attitudes would be capable of quantifying teacher attitude change toward students with hearing loss as a result of in-service training programs on hearing impairment. An instrument capable of detecting and and measuring particular attitude changes might enable development of in-service programs geared directly to achieve attitude change and promote development of positive attitudes toward individuals with hearing loss.

Attitudes are quite stable in most adults and unlikely to change unless some sigificant effort is made (Borg & Gall, 1989).

Future research should give additional direction for teacher in-service training programs which would effectively increase teacher knowledge of hearing impairment and promote positive and helpful teacher attitudes toward mainstreamed children with hearing difficulties. Awareness and knowledge leading to understanding, sensitivity and empathy are essential attributes for teachers, in order that they may promote a successful educational experience for all children. Promoting development of all children to their highest potential is a philosophical underpinning for the aims of education in Alberta. A brief in-service training program has been shown to be a viable way to contribute to the education of children.

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APPENDIX A

Sample Copies of the Instruments

Thank you for your cooperation in completing this questionnaire. It is very much appreciated.

All information will be kept confidential. For purposes of anonymity, a coded identification number will be placed on your response sheets.

Please record your name here _____ _____.
first surname

Please check that this identification number _____ appears on the blue answer sheet in place of your name.

Please respond to the following questions by selecting or completing the correct answer.

Gender M ___ F ____

Age? a) 20-30yrs. _____
b) 30-40yrs. _____
c) 40-50yrs. _____
d) 50+yrs. _____

Total number of years teaching experience?

a) 0-5 _____
b) 5-15 _____
c) 15-25 _____
d) 25+ _____

Have you taken courses which dealt specifically with hearing and/or hearing impairments?

a) None _____
b) 1 _____
c) 2 _____
d) 3 or more _____

Have you had other training or experience in working with hard-of-hearing children?

a) None _____
b) Workshops or In-service training _____
c) Personal contact with professionals trained to serve the hard-of-hearing
d) Other _____

Have you taught children identified as hard-of -hearing?

a) Never _____
b) Occasionally _____
c) Frequently _____
d) Regularly _____

Please use the blue General Purpose - NCS - Answer Sheet for the following questions. Use the pencil supplied to mark your answers. The back of the answer sheet has directions for properly darkening the correct circle.

Section 1

For each of the following statements, please respond true or false. For true, please mark "A" on the answer sheet. For false, please mark "B" on the answer sheet.

1. A child with a high frequency loss is more likely to hear vowels than consonants.
2. Listening is a more physically tiring activity for the hearing impaired than the normal child.
3. One of the problems with hearing aids is that background sounds are picked up to the same degree as speech sounds.
4. Hearing impairment typically results in as much of a decrement in performance I.Q. as in verbal I.Q.
5. Hearing aids for the hard-of-hearing and the deaf are as effective as are glasses for the partially sighted.
6. Normally hearing children generally learn new words almost unconsciously by repeatedly encountering them in everyday speech.
7. Weather and minor illness may temporarily compound a child's hearing loss.
8. A child with a loss of 60 db can discriminate only 40% of speech sounds.
9. Hard-of-hearing children may either speak too loudly or too softly.
10. The hard-of-hearing child should be positioned within the room so that he can view his classmates' as well as his teacher's face.
11. A hard-of-hearing child who uses a hearing aid can hear as well from the back as from the front of the room.
12. The hard-of-hearing child should be given a special seat where he has an unobstructed view of the teacher's face.
13. The hard-of-hearing child should not be expected to attempt the same speaking assignments as other children.
14. Hearing impaired children will sometimes pretend to have understood when they have not.
15. It is sometimes necessary to repeat for the hard-of-hearing child what another child says in class.
16. A hearing loss can usually be completely overcome by proper amplification.

17. When a hard-of-hearing child is integrated into a regular class, it is usually better if his classmates are told about his handicap.
18. A sensory-neural loss is a temporary impairment resulting from infection or wax build-up in the ear.
19. After a little instruction, a classroom teacher should be able to do simple repairs on a hearing aid.
20. The hard-of-hearing child should be encouraged to check with the teacher whenever he is unsure that he has understood.
21. Congenitally hard-of-hearing and deaf children often have a natural aptitude for visual tasks like lipreading.
22. Even with the best of teaching, the hard-of-hearing child will have a limited vocabulary compared to his normally hearing peers.
23. If a hard-of-hearing child doesn't understand, the teacher should repeat the same thing louder and more slowly until he does understand.
24. Visual aids should never be used because hearing impaired children need to learn to concentrate on auditory cues.
25 The hard-of-hearing child will not be as adept at note-taking as other children.
26. It is always possible to predict how successful a hearing impaired child will be in school from the extent of his hearing loss.
27. Slang and idioms should not be used with hard-of-hearing children.
28. If no educational treatment is provided, deafness is more likely to result in retarded language development than other forms of physical impairment like blindness or cerebral palsy.
29. A hearing loss of 25-35 db (IS0) is considered moderate.
30. It is helpful to the hearing impaired child if the teacher writes what he/she says on the blackboard.
31. Hard-of-hearing children are more distracted by background noise than are normally hearing children.
32. The hard-of-hearing child who has received good speech training should be able to lipread under any normal conditions.

Section 2

Please read each of the following statements, starting at #33 and decide how much you agree or disagree with the statement about hearing impaired people. There are no right or wrong answers. It is important that your answers accurately reflect how you feel about each statement. Answer all the statements. Mark only one choice for each item. The next page gives an example.

Example I prefer summer to winter.

On the answer sheet fill in:

circle "A" - if you disagree very much
circle "B" - if you disagree pretty much
circle "C" - if you agree a little and disagree a little
circle "D" - if you agree pretty much
circle "E" - if you agree very much

In this example, suppose you agree very much with preferring summer to winter, you would fill in the circle under "E" like this:

A	B	C	D	E
0	0	0	0	**0**

33. Parents of hearing impaired children should be less strict than other parents.
34. Hearing impaired people are just as intelligent as normally hearing ones.
35. Hearing impaired people are usually easier to get along with than other people.
36. Most hearing impaired people feel sorry for themselves.
37. Hearing impaired people are the same as anyone else.
38. There shouldn't be special schools for hearing impaired children.
39. It would be best for hearing impaired persons to live and work in special communities.
40. It is up to the government to take care of hearing impaired persons.
41. Most hearing impaired people worry a great deal.
42. Hearing impaired people should not be expected to meet the same standards as normally hearing ones.
43. Hearing impaired people are as happy as normally hearing ones.
44. Severely hearing impaired people are no harder to get along with than those with minor hearing impairments.

45 It is almost impossible for a hearing impaired person to lead a normal life.
46 You should not expect too much from hearing impaired people.
47. Hearing impaired people tend to keep to themselves much of the time.
48 Hearing impaired people are more easily upset than normally hearing people.
49. Hearing impaired persons cannot have a normal social life.
50. Most hearing impaired people feel that they are not as good as other people.
51. You have to be careful of what you say when you are with hearing impaired people.
52. Hearing impaired people are often grouchy.

That's it! Thanks again very much.

APPENDIX B

In-service Presentation

In-service Outline: Orientation to Hearing Impairment for School Personnel

Rationale for this In-service. Knowledge provided to school personnel regarding hearing impairment will assist them to create an integrated educational environment, which provides equal opportunity for all children to develop academic and social skills and achieve their potential for academic achievement and social adjustment.

Purpose of this Workshop: To meet the needs of school personnel for information and management strategies regarding hearing impairment and to inform school personnel about the characteristics and special needs of children with hearing losses.

Knowledge Objectives:

Information

prevalence and etiology

prevention and treatment

testing, hearing aids, amplification

receptive and expressive communication skills

psychology of hearing impairment

Management strategies

classroom management

educational deficits and academic potential

peer interaction attitudes

Psycho/social Objectives

opportunity to discuss personal experience

describe contacts with hearing loss and children with hearing difficulty

ask questions specific to hearing impairment

In-service Overhead Transparencies

Hearing Loss

Goals of this in-service

Humorous advantage (?) of hearing loss

Humorous disadvantage of hearing loss

Defining hearing impairment

Anatomy of the human ear

Physiology of hearing

Conductive hearing loss

Sensorineural hearing loss

Types and causes of hearing loss

Interpretation of the audiogram

Intensities of common sounds

Picture audiogram

Sample audiograms

Degrees of hearing loss

Communication deficit, educational and social implications

Identification of children with hearing loss

Perception of children with hearing loss

Effects of communication difficulties

Academic and social deficits

Inattention, demand for attention, dependence

Self concept, peer rejection

Personality and behaviour

Classroom management

Hearing aids/amplification

Talking to students with a hearing loss

Classroom communication

Classroom tips

Socialization

What can the teacher do to facilitate acceptance?

Noise-induced hearing losses

Avoid the risk of hearing loss in children and teenagers

Agencies and services in the Edmonton area